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FINE AND APPLIED ARTS, COMMERCIAL EDUCATION, AND HOME AND FAMILY LIVING

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INTRODUCTION

THIS ISSUE of the REVIEW OF EDUCATIONAL RESEARCH is the first to deal exclusively with fine and applied arts and commercial education. Previously these subjects were treated in the issues entitled "Special Methods and Psychology of the Elementary-School Subjects" and "Psychology and Methods in the High School and College." However, it was possible for the writers on each chapter to follow rather closely the precedent established for reviewing those studies that have appeared in published form during a three-year period. Thus this issue of the REVIEW covers in general the three years preceding March 1941.

As was contemplated by the Committee when it undertook the task of preparing the manuscript, the fields covered are not clearly defined. The chapter on music includes studies in physics and radio. The chapter on home economics includes home and family living as well as those aspects commonly classified as home economics. The chapter on industrial arts includes what is sometimes called vocational education, industrial education, and national defense. The chapter on commercial education includes business training, clerical work, and office practice. Some of these subject-matter fields show a need for more clearly defined terminology. Yet in spite of this limitation, considerable research has been done which should help to clarify the problems in these fields and to set more concrete objectives for the administrators, the curriculum workers, and the teachers in the classroom.

MANLEY E. IRWIN, *Chairman*
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CHAPTER I[1]

Commercial Education[2]

JACOB S. ORLEANS

THE FIELD OF COMMERCIAL EDUCATION covers the subjectmatter of bookkeeping or accounting, business arithmetic, commercial law, introduction to business, office machines, shorthand, typewriting, transcription, secretarial practice, business English, salesmanship, retailing, the materials of merchandise (textiles and nontextiles), advertising, marketing, and consumer education. In the summary presented here, not only studies in the subjects listed above are included, but also studies that might be regarded as falling under the headings of guidance, curriculum development, professional training, and the like. They are included here because they deal with the professional training of teachers of commercial subjects, with the content of commercial subjects, and with guidance problems of students who have taken commercial work and seek commercial positions.

Through the use of a questionnaire sent to 158 secretaries, Fowler (14) ascertained the amount of bookkeeping training they had had and their need for such training in their jobs. He concluded that every student majoring in secretarial work should have an appreciable amount of work in accounting with actual practice in keeping sets of books. Miller (32) found that in one small community percents of pupils preparing for different types of commercial positions were not in accord with the needs for workers in such positions. Although this study deals with one small community, the findings would in a broad sense probably be true for the country as a whole. Toll (50) determined, through questionnaire and interview procedures, the occupational distribution of various types of commercial positions in Quincy, Illinois; the duties of each position; the training required for each position in terms of special knowledge and skills, the personality traits desirable, and the mastery of subjects other than commercial; and employee deficiencies. He also studied the extent to which each type of skill—shorthand, typing, commercial arithmetic, bookkeeping, and so forth—is used in these positions. Another approach to the curriculum problem in commercial subjects is through the medium of consumer needs. Hardaway (20) determined the extent to which commercial courses contribute significantly to the type of knowledge needed by consumers. She administered a two-hundred item test to over six hundred seniors in the El Paso, Texas, schools. Her general conclusion is that the pupils who have had an appreciable amount of work in bookkeeping, commercial law, and economics are better able to deal with consumer problems than those who have had less or none of these subjects.

[1] This chapter was prepared with the cooperation of Walter Cassidy of Fordham University; Baird Parks of the College of the City of New York; W. Irvin Pearman of the College of the City of New York; Arthur H. Sutherland of the College of the City of New York; and Herbert A. Tonne of New York University.

[2] Bibliography for this chapter begins on page 373.

Coover (11) reported results on a questionnaire comprising business and economic generalizations rated by thirty persons. Mulvihill (36) studied the overlapping between high-school and college commercial courses. Robertson (43) measured the presence of business and economic concepts among ninth-grade pupils. Her conclusions are in terms of differences between age and sex groups and parental occupation. Her data provide the possibility for analysis in terms of content. Graham (17) conducted a nationwide survey to determine the extent of cooperative retail training programs for high-school graduates and the nature of the programs, and concluded that the trend in the development of such programs under the provisions of the George-Deen Act is a significant one. An integration of results of such studies would be desirable as a basis for determining the content of commercial courses to replace the original authoritarian determination of textbook writers.

Guidance of Commercial Students

The primary emphasis on guidance in the field of business education continues to be on the problem of technics for discovering the best methods of job placement and follow-up, and for determining the adequacy of the training given as a basis for curriculum and guidance evaluation. The study by Levy, Nunes, and Berlin (28) concluded that high-school graduates who have taken high speed and secretarial courses while in secondary school are securing remarkably satisfactory job placements. These jobs are obtained by many different procedures and represent an argument for expanding rather than limiting shorthand training in the secondary school. Schloerb (46) found, on the basis of interviews with employers and on the records of various placement services, that there are more young persons seeking white-collar jobs than there are jobs available; and that employers wish schools to emphasize the development of character traits rather than the mastery of skills, but that they believe the fundamental skills need to be better taught in schools. Wein (54) came to these same conclusions and stressed the need for a greater insistence upon job standards in the school. Pavan (40) evaluated the study of the occupational commercial aspects of the WPA activities of Philadelphia high-school graduates. This comprehensive survey indicated that over 90 percent of the commercial graduates actually secured positions as office workers—agreeing with the point of view expressed by Levy, Nunes, and Berlin (28) in their study, which showed that job success of business education in the high schools is substantial and that 80 percent of these graduates of business curriculums had used some part of their vocational training since graduation. The age most commonly accepted by businessmen as desirable for entrance into business is eighteen.

Trytten (51), in his survey of hiring methods sponsored by the Personnel Group of the National Retail Dry Goods Association, indicated that more than half of the employees hired by department stores have some grievance

against the company by the time they are hired. The study indicates technics for overcoming or at least reducing the extent of these grievances. Brummett (7) noted, as a result of her follow-up, that the graduates of a particular high school found the following subjects most helpful in order of value: typing, shorthand, commercial arithmetic, bookkeeping, business teacher training, commercial law, and commercial geography. The graduates suggested that training be given in office machines, business English, and salesmanship, among others. Westman (55) based his study on the follow-up of graduates of the Duluth Central High School in order to study occupational classification and the relation of scholastic ability to occupational status. A far larger percent of the commercial graduates, as opposed to the noncommercial graduates, felt that their schoolwork trained them for their current positions. A large percent of the students expressed dissatisfaction either with the academic training they had had or with commercial training that was inadequate or that prepared for overcrowded fields. There is opportunity for a compilation of the numerous follow-up studies undertaken in business subjects, and a nationwide and thoroughly authenticated body of information would be of great use in bettering the achievement of the guidance functions of the school.

Surveys of Business Education

Fundamentally significant in this area of research in business education is a state by state compilation of the certification requirements for business teachers in the United States by Brewington and Berg (6). This compilation gives specific requirements for teaching various business subjects, general background and general business education requirements, practice teaching, business experience, and various other stipulations set up by the several states. Judgments are rendered upon carefully established criteria about the present certification requirements. Brewington (5) also set up a detailed statement of certification requirements of business teachers in Illinois. Turrille (52) and Thompson (49) studied the status of commercial teacher training in Nebraska and in Illinois, respectively. Tarkington (48) surveyed employment conditions for commercial teachers in the United States. According to the state superintendents and commissioners in twenty states, the supply is less than the demand; in nineteen states the supply approximately equals the demand; and in nine states the supply is probably greater than the demand.

Shorthand, Typewriting, Transcription, and Office Practice

Surveys of the transcription errors of high-school secretarial pupils show that a lack of knowledge of the rules of grammar, punctuation, and capitalization, plus an undetermined amount of carelessness, is responsible for many of these errors. Williams (56) analyzed the errors in 15,000 transcription papers of 256 students. Errors in punctuation alone accounted

for 78 percent of the aggregate number of errors. Olenbush (38) made a similar survey in which mailable and fairly complete letters transcribed from shorthand were rated as to errors in form and arrangement, usage of grammar, spelling, punctuation, and the like, and concluded that there should be more collaboration between English and business subjects, and that pupils be chosen for transcription courses on the basis of clerical ability tests.

The relative abilities of bright and slow pupils in learning typewriting were investigated by Platt (41) who, in a study of 107 unselected pupils, reported that pupils with high IQ's make excellent or good typists. No pupils with low IQ's make good typists; no pupils with high IQ's make poor typists. The average pupil may be a good or a poor typist. Mitchell (35) made a similar analysis of the abilities of pupils of low IQ (73 to 106) to learn shorthand. She studied the work of those pupils who strongly wished, despite all discouragement, to take up secretarial work. Her observation of special classes of such pupils led to the recommendation that every large shorthand department institute at least one slow-moving class which would spread one year of work over three terms, and that only the more mature pupils be allowed to enrol.

Lawrence's survey (27) of the secretarial courses offered in the forty-eight member institutions of the American Association of Collegiate Schools of Business provided detailed information about the nature and amounts of the offerings and credit practices. He urged research to determine course boundaries, standards of achievement, evaluation, and the like. Malueg and Snyder (29) in their study of drop outs from college courses in shorthand found that of an original college group of 370 beginning students in shorthand, only four of those rating below the 25th percentile in the Thurstone Psychological Examination succeeded in completing the third semester of shorthand. They recommended that students who are inferior in psychological test scores, the Iowa Silent Reading Test, and high-school marks be discouraged from entering shorthand courses. Eyster (12) reported the results of predictive procedure in which mental rating, average English marks, average of all other marks, score on Hoke Prognostic Test of stenographic ability, and a subjective personal trait rating were used to prognosticate success in shorthand.

Merrick (30) in a study of 4,650 pupils in typewriting classes reported that mental age is not a significant factor in typing success as measured in terms of gross and net words per minute for pupils of this level. She defended a seventh-grade typing course not only on the basis of typing skill required but also on the basis of the English that the pupils learned. She concluded (31) that the learning of typewriting should include practice in composing as well as in copying. On the basis of the work of twenty-nine seventh- and eighth-grade pupils she found that quality of composing usually surpasses quality of copying at the same or higher rates. A study by Watson (53) indicated another type of relation between English and secretarial work. Watson found that practice in composing on the type-

writer resulted not only in an increase of ability to compose on the typewriter but also that pupils were able to compose faster in longhand after the typewriting practice. The increase in amount of material written by an experimental group of high-school boys and girls ranged from 43 percent to 298 percent over their initial rates. No relationship was observed between the rate of typing and the quality of expression, nor was any relationship found between the mental age or IQ and the quality of expression.

The variety of equipment used in high-school office practice courses and college secretarial training was reported by Sutton (47) and by Freeman and Melofsky (15). Ogle (37) reported a lack of uniformity in college courses of study and standards required for work. In 93 percent of the fifty-four colleges that she surveyed, credit for secretarial work was given toward a college degree in the case of all machines other than the typewriter. Although training in transcription was given, there seemed to be more emphasis upon the training of supervisors than on the actual operation of the machines. Only 25 percent of the colleges reported training in office machines other than the typewriter. Freeman and Melofsky reported a similar lack of uniformity in a follow-up study of high schools in Westchester County. Only 75 percent of the forty-three high schools having commercial departments offered courses in office practice. The aims of the courses were to acquaint pupils with various types of office machines, to study clerical and office routines, and to develop marketable skills. The topics taught ranged from typing, filing orders, pricing, billing, telephone work, receiving and shipping orders, mailing, cash register, accounting, and so on, to business ethics.

Ogle (37) and Robinson (44) showed attempts to make conditions of secretarial courses approximate those found in offices or those that employers wish to prevail in offices. Ogle set up a classroom situation in which each student's activities approximated those of a secretary. As a result of the experiment, Ogle stated that the planning of class work on this basis improved the initial efficiency of a secretary. Robinson (44) approached the same problem through a questionnaire study to determine dictation methods in business offices. Business executives and experienced stenographers urged the schools to give more training in the fundamentals of business, to teach fewer courses more thoroughly, to give more training in meeting the public, to provide actual training in using the telephone, and to provide other items dealing with the development of personality.

Commercial Arithmetic

A summary of research in commercial arithmetic presents the obvious difficulty of distinguishing between just arithmetic and commercial, or business, arithmetic. Studies dealing with arithmetic knowledge at the high-school and college level as well as studies dealing more directly with the solution of business problems by means of arithmetic were deemed

pertinent to this field. Cassidy (10) justified the inclusion of over one hundred items in the commercial mathematics course on the basis of extensive analyses of commercial mathematics textbooks, accounting and bookkeeping textbooks, theses, civil service examinations, sales promotion literature of business machine companies, national trade journals, and data provided by certified public accountants. Roach (42) determined, after interviews with druggists, doctors, lawyers, farmers, and other professional and tradespeople, the kind of arithmetic that can make the course concrete and that includes problems that will furnish a basis for practical living. Given (16) claimed that a maintenance program should be developed in the secondary schools which would give greater opportunity for the functional use of arithmetic, and that arithmetic fundamentals become more meaningful to the student when he must master them in order to solve an immediate problem. Kinney (25) discussed suggested objectives for business arithmetic based upon a survey of large and small business establishments as to arithmetical calculations performed.

Bramhall (3) found that a good method of teaching problem solving is to give pupils many opportunities to solve problems their own way and at their own speed. Braverman (4) noted that ninth-year algebra improved the arithmetic abilities of students. Casner and Nyberg (9) pointed out that high-school seniors with seven to eight terms of mathematics averaged 4.44 problems out of 8 correct, while those with none or one term averaged only 1.29 correct. Their results were based on a test of eight problems given to 212 high-school students. The authors regarded all the results as poor and recommended that all other departments of the high school cooperate with the mathematics department in providing training in dealing with practical arithmetic problems. Mitchell and Nemzek (35) administered an arithmetic test to over five hundred high-school seniors including students who had a year of algebra and a year of commercial arithmetic and a group who had had several academic courses in mathematics beyond algebra. The latter group did better on the arithmetic test, leading the authors to the conclusion that students who have had high-school commercial arithmetic do no better on an objective arithmetic test than do matched students who have not had arithmetic in the high school as a separate course.

Orleans and Saxe (39) assumed that certain types of problems should be part of the commercial arithmetic taught in the secondary school and analyzed the learning of such problems for a group of students in a professional business college. They found that although the group of students was highly selected the knowledge of business arithmetic was comparatively meager. A detailed analysis of types of errors showed that few were computational. The major difficulties were found to be those related to the problem-solving procedure. The authors concluded that the problem-solving difficulties result from rote learning and a consequent lack of development of a reasoning process.

Distributive Trades

Holman (22) reported on a part-time cooperative program in Mason City, Iowa, in which students who worked part time in distributive occupations were trained in the field of distribution and their success in their jobs evaluated in comparison with graduates not so trained. She concluded that such a cooperative training program fills a need in the community and increases the possibilities of job getting as well as salaries. Wissig (57) reported an analysis that attempts to answer such questions as the following: To what extent are employees trained by individual business concerns? What is the nature of the training programs used by specific concerns? The analysis provided information concerning the nature of the training staff, the details of the programs, methods and materials, and supplementary activities.

Consumer Education

Kent (24) analyzed and appraised consumer education programs of sixty high schools located in various parts of the country. Consumer education criteria were set up and used as the basis for the appraisal of the sixty programs. The appraisal indicated that "if the student gets information which results in modifying and strengthening his concepts concerning needs, desires, tastes, and attitudes, it is only indirectly through the study of other allied subjects."

Despite the rapid and extensive development of consumer education, there is little published research in this field. There has been almost no research evaluating the content, outcomes, and methods in any of the commercial subjects as a basis for developing sound and effective methodology. Considering the extent of commercial education in the United States today, its rapid development, and the continued increase that is obviously to be expected, it would not be out of place to point out first the desirability of publishing completed research in this field; second, the limited amount of the research so far done (judging by what has been published); the need for integrating significant completed research; and the need for a great deal of significant research in the many phases of commercial education.

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CHAPTER II

Art[1]

RAY FAULKNER and EUGENE MYERS

INCREASING EMPHASIS in the past few years has been placed on relating instruction in the arts to other subjectmatter areas and, more particularly, to life needs. That art should function in all school and life activities was made evident by the Owatonna Art Education Project (75, 77) in which the art needs and interests of the people in a typical community were studied, and a school art program was developed primarily in terms of these needs. Faulkner (18, 19, 21) reported similar findings from experimental work in organizing art instruction at the college level. He concluded that the primary need for art is as it occurs in everyday activities, such as those relating to the home, the community, commerce, and industry. Whitford (73), in discussing recommended practices in school art, observed that there is a growing desire today to provide all pupils with a common, integrated body of habits, skills, attitudes, appreciations, and functional knowledge that will enable them to adjust to the dynamism of the present culture. A concern for the development of the whole child and for the development of complete and integrated personalities, such as that outlined by the Committee on the Function of Art in General Education (65), has stemmed in part from organismic psychology. The members of this committee concluded that the most important concern of art education is the growth of personality, that art experiences are the right of every person, and that art should be an inherent element in the total drama of life.

Integration of Art and Other Subjects

A statement (1) prepared on secondary education by general educators illustrated the growing realization that esthetic experience is vitally related to all other experiences of the learner, and should be made generally available to high-school pupils as well as to elementary-school pupils. MacDonald (49) further emphasized the arts as important factors in education at the secondary level. Whiting's survey (74) on the integration of art with various high-school subjects led to the conclusion that art should be considered as one phase of the education of all high-school teachers. D'Amico (12), writing about high-school art instruction, indicated the desirability of meeting two requirements: the specific needs of each individual and the integration of art with the general education of the student. The method should be flexible to encourage solutions to art problems in a variety of ways and mediums; individual to encourage individual choices, habits, and abilities; and coordinating to motivate and

[1] Bibliography for this chapter begins on page 383.

clarify meanings beyond the initial art experience to relate art interests with other areas. Schultz (69) discussed in detail the program undertaken at the Francis W. Parker School to bring about a more thorough understanding of the artist and his relation to society. Student committees selected exhibitions of original works by Chicago artists. Schultz pointed out that the experiment helped clarify the problems of the artist as a member of the social group, and that it led to a new and vitalized interest in the arts. Quin (66) discussed a progressive, flexible, integrated program of art at the secondary level.

Factors in Teaching Art

At the college level, Cowling (11) reported an experiment with an introductory art course. A semiprofessional approach to art, and an approach based on the individual conference method, were completely or partly discarded for a method based on individual conference plus a running core on the study of art structure. Another experiment (2) probed for ways to improve college student receptivity in dealing with art appreciation and ultimately led to a laboratory approach. Faulkner (19), in discussing course methods, has found that the value of any method of art instruction depends less on the method itself than on the details of how that method is used. Regarding the service function of the art teacher, members of the Committee on Art Education for the National Commission on Cooperative Curriculum Planning (61) concluded that it is not a matter of "service" which is given by a department, but something so important that without it the form would be incomplete. Their consensus was that the art staff should be composed of qualified teachers in art who have sufficient background in general education so that they can understand and interpret the work done by other departments. Preston (64) surveyed the time allotments for art in the public schools in fifty-two midwest cities. In the first three grades she found a range of from 25 to 200 minutes per week with a median of 100. In Grades IV, V, and VI, she found a range of from 25 to 175 minutes per week with a median of 90.

Radio and museums—Several experiments have been tried in art education by radio, and more emphasis is being placed on utilization of the art museum. Howell (34), in evaluating the Cleveland public-school experiment in art appreciation by radio, reported the following outcomes: increased enthusiasm for works of art and nature; increased interest in visiting the art museums; enrichment of vocabulary; recognition of art as a factor in life; improvement in taste; and stimulation of creative effort. Along with the radio programs other sensory impressions were afforded the children through the use of colored slides, color prints, and various supplementary materials. The success of the venture was largely attributed to the excellent follow-up means that were employed. Another study (68), based on the results of a questionnaire survey of the audience of a broad-

cast course in art appreciation, indicated that any appreciation of art that was developed was superficial. Although listeners reported that they enjoyed the programs and intended to do something as a result of the instruction in art they had received, they actually did very little. In a discussion of the role that the museums can play in education, Davis (13) reported that art museums have been experimenting and searching for a closer relation with the school and community. His report contained descriptions of a number of specific educational programs being conducted by museums today. Foley and Anastasi (25) reported on a gallery developed under WPA auspices, the purpose of which was to stimulate the creative and appreciative sides of children's artistic natures by providing exhibits of work done in art projects, and by maintaining classes for children. Levy (44) prepared a guide covering opportunities for art training in high schools, colleges, universities, art schools, and WPA art classes in New York City.

The Training of Teachers of Art

Ziegfeld (75) pointed out that present trends appear to be leading away from the platoon system and departmentalized instruction at the elementary level, with the result that more classroom teachers will have to assume the responsibilities for teaching art. The report offered a number of specific recommendations for teacher-training institutions. Hager and Ziegfeld (29) revealed a lack of agreement among teacher-training groups as to what should be included in the education of an art teacher. They pointed out that the great variation in the amount of work required indicated that very differently equipped teachers are being produced to fill the same kinds of positions. The study also revealed a growing tendency to broaden the preparation of art teachers to include considerable work in English, social science, and natural science, as well as in art. Horn (32) pointed out that teachers colleges tend to give too few hours to art courses in proportion to the requirements in art education, and that art schools tend to give too many such hours. He concluded that one-third of the students' time devoted to studio courses appeared reasonable.

Children's Preferences

Four studies of preferences by Lark-Horovitz have considerably expanded our understanding of what qualities in art interest children, and as such are of value in planning school art programs. The first (38), dealing with preferences of picture subjects in general, showed that children have definite preferences, that there is a sharp difference between very young boys and girls which diminishes as they grow older, and that children with marked art ability tend to notice design and color more than do typical children. The second study (39), dealing with portraits, revealed again that children have marked preferences for some pictures, that boys

prefer portraits of men while girls prefer those of women and children, and that the basis for the preferences is the subjectmatter interest of the person portrayed. The study (40) of textile pattern preferences showed that—with the exception of older, especially gifted children—abstract designs are of less interest than more or less realistic designs of objects close to the children's interests. A comparative study (41) of white and Negro children gave evidence that the two groups differ widely in their preferences for pictures and portraits but are quite similar in their reactions to textile patterns.

Developing Creative Tendencies

The progress of art education depends to no small degree on the understanding of creative activity held by teachers, and in this area a number of recent studies are of interest. Levey (43) gave a systematic review of many theories of creation and stated his belief that creative activity is an individual, more or less unconscious, process of transcending recurrent mobile depressions. This conclusion was challenged by Hough (33) who placed emphasis on tradition and on the social background. Pickford (63) admitted that the importance of the Freudian process of sublimation is important but saw the artist in relation to his social culture. Munro (59), in a comprehensive discussion of creative activity and its educational fostering, pointed out the importance of both individual and group factors.

Several specific phases of creative activity have been studied. Lowenfeld (45), working with visually handicapped subjects, found that artistic expression was not necessarily visual in origin, and differentiated between the visual and haptic types. McCloy (47) investigated creative imagination and found among other results that creative ability seemed to bear little relation to chronological age beyond twelve years. McCloy and Meier (48) observed that students with art training have superior recreative imagination. McCloy (46), studying passive creative imagination, found a tendency on the part of his observers to prefer calm, peaceful pictures; to dislike oppressive, unnatural pictures. A questionnaire study by Merry (54) showed that the characteristics most often regarded as comprising art talent are love for and interest in art; ability to distinguish the good from the poor in line, value, and color; ability to portray visual images graphically; and creative ability. In a final summary of a ten-year study of a special ability, Meier (51) concluded that art ability depends on six conditions: manual skill or craftsman ability, energy output, and general esthetic intelligence which are primarily hereditary; perceptual facility, creative imagination, and esthetic judgment which are primarily dependent on environmental factors.

Mitchell (55) pointed out that the child's self-confidence and self-direction will be strengthened when he finds and solves his own problems. Boas (3) discussed ways she had found successful in fostering art activity and clarified the problem of standards for teacher and pupil. A workshop

approach to art education, based largely on design, was discussed by Pearson (62). For the elementary level, Cole (10) reported that success in releasing the creative ability within the child was achieved when the teacher established a genuine rapport with the child and that the teacher must evolve her own approach and means of presentation from her own background of teaching experiences and understanding. Meier (50) pointed out that the belief that any child will create if left alone lacks substantiation, but that children will respond to competent guidance and in individual cases will show surprising gains. An evident conclusion in several studies (10, 50) was that nothing is created except from the experiences of the person and that, since children vary in the richness, variety, and clarity of their experiences, there will be a variation in the readiness and facility with which expression becomes possible. Mundell (57) sought to discover if any change would result in the art production of intermediate-grade children if they were given a series of lectures on art principles conceived by adults. Two matched groups of fifth- and sixth-grade children were given art training, and one group was also given lectures. Results showed that neither the children's esthetic judgment nor their production was influenced by the lectures.

Appreciative Activities

A number of investigations of appreciative activities have given new data on this phase of art education. A psychological description of the esthetic experience by Hevner (30) stated that it is usually affectively toned and is differentiated from other mental activities by its dignity, intensity, and unity. She emphasized that it is an active process and that training is necessary. Read (67) placed emphasis on the unity of esthetic emotion. Munro (60) wrote that what children like is of less importance than why they like it and how they came to form their judgments. He pointed out that, although there are many varieties of esthetic response, the general components appear to include visual perception, imagination and understanding, response to associative content, empathy, and knowledge of art.

Brighouse (6) found that mature esthetic apperception is dynamic in those persons trained in art and that they show far greater mental activity of a carefully directed kind and are more directly concerned with compositional factors than are subjects with little or no art training. His results indicated that artistically untrained adults show only slightly greater esthetic maturity than children, a plateau apparently being reached at ages ten to eleven. Gunthorp (28) found that esthetic maturity, as judged by adult standards, is related to high scholastic attainment, training in art, and high cultural level.

Sisson (70) found that verbal suggestion is a factor in determining art judgment. Kellett (36), investigating the essential bases of unity in graphic art, found that visual clarity of organization or unity seems

relatively unimportant in determining the hedonistic choices of artistically untrained observers, in spite of the fact that unity is placed high in most scales of esthetic values. She concluded that "objective unity is not a first determining factor in pleasure derived from works of art," and that unity seems to be a function both of the art object and the observer. Clair (9) found that training in two-dimensional design tends to block an appreciation of three-dimensional composition, but that a searching, analytical attitude does not hinder esthetic pleasure. Cahalan (7) reported that esthetic judgments within a period of a year were generally consistent for the same subjects, with art students being more consistent than nonart students and those making high scores tending to be more consistent than those making lower scores. Eysenck (17) found evidence for a general, objective factor of visual esthetic appreciation which was independent of teaching, tradition, and irrelevant associations. Dewar (14) also found evidence that a general factor is influential in determining art appreciation.

The problem of evaluating art products, closely related to appreciation, is not only central in most programs of education in the arts but is also one of great complexity. Gilbert and Kuhn (26), in the first comprehensive history of esthetics written in English, traced the development of esthetic theory from early times to the present. Boas (4), treating the problem philosophically, discussed *instrumental* and *end* values. Greene (27), working closely with artists and art critics, gave a conservative, scholarly account of matter, form, and content in art. Evans (16) attempted to account for tastes primarily in terms of introversion-extroversion, thus breaking with the typical historical method. Some of the more philosophic treatments of value were summarized by Faulkner (22). Munro (60) related the philosophical and psychological methods and findings.

That art judgment is specifically related to the field of art being judged was the report of Faulkner (19) who found low, positive correlations between scores on different tests of art judgment. A similar finding was reported by Dewar (14). As reported in these two studies, the relation between scores on single tests of art judgment and tests of intelligence also gave low positive correlations. However, Dewar reported a correlation of .48 between the average on four tests of art judgment and intelligence. From these data it appears that the existing tests of art judgment measure a type of behavior relatively independent of general intelligence, and that the various tests either do not measure the same ability or measure different aspects of it. Dewar reported evidence of a single general factor but with some indication of specific factors.

Measurement of Art Abilities

In contrast to the earlier tests which were for the most part general in nature, many recent tests are more specific. Varnum (71, 72) developed and published a selective art aptitude test for the "specific advisement of young people interested in art and desirous to become artists and design-

ers." (72) Accompanying the test is a list of one hundred and sixty-one vocations and professions which show the expected scores on the test for persons in each occupational field. The author claimed that training does not change or influence the scores, and that preliminary usage had shown high prognostic value. If Varnum's claims are justified, a much needed instrument will have been made available to guidance counselors. Based on a thorough analysis of some ten thousand drawings of children, Lark-Horovitz, Barnhart, and Sills (42) prepared a graphic work-sample diagnosis of the drawings of children. Feeling that scales and judgments of children's work based on adult judgments and involving *a priori* standards were not valid for the diagnosing of children's work, the authors established "an empirical basis for evaluation on the extent to which certain characteristics of the drawings are typical of each age." (42) Although the instrument in its present form is not easy to use, it marks a forward step in theory and practice.

Two unpublished tests also hold considerable promise. Paul Diederich developed a test for use in high schools called *Seven Modern Paintings*. In it, the responses of the subjects are rated in relation to the responses of other high-school children. Bruno Bettleheim prepared a test in which the subject selects, on the basis of similarity, pairs from forty reproductions of paintings. Besides the esthetic sensitivity thus displayed, the test reveals much about the subject's personality and interests. This is also true of Diederich's test. Faulkner (20) devised pictorial tests to measure judgment of paintings, sculpture, architecture, and industrial products; congruity in house design and house furnishings; and verbal tests in art principles, art history, and attitudes toward art. In a statement on evaluation in a general art course, various technics useful in measuring students' progress were discussed.

Summary

Although in the past the arts have received somewhat less attention, particularly of a scientific nature, than most curriculum areas, there is a salutary tendency to take stock of past work and to consider what should be done in the future. The Fortieth Yearbook of the National Society for the Study of Education, entitled *Arts in American Life and Education*, gave a comprehensive picture of the present status of art education, and the articles by Munro (58, 59, 60), Meier (52), and Faulkner (23) pertain specifically to research. Moore (56) gave a statement of research in art education, and Chandler and Barnhart (8) prepared an extensive bibliography.

Future progress depends to a large extent on two factors: defining problems which need investigation, and developing suitable methods. In regard to the first factor, Hilpert (31) listed a number of studies which need to be made, Doucette (15) reported an outline of research studies in art education, and Faulkner (18) proposed a research program in art

appreciation. There is need for careful study of broad objectives and policies as well as for experimental studies of types of courses needed at different levels and for different types of schools, on how such courses may be taught most effectively and how they should fit into the school program. Studies of children's preferences, individual and group differences, and the learning process in art are needed. In regard to the second factor, Koffka (37) emphasized that such problems have both objective and subjective characteristics, and Faulkner (24) stated some of the basic principles on which research in art education rests. With the increased interest in graduate work in art education such problems will undoubtedly receive attention.

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CHAPTER III

Home and Family Life Education[1]

CLARA M. BROWN

MORE THAN TWO HUNDRED STUDIES in home economics education have been reported as carried on by graduate students and faculty members during the past three-year period. Those discussed in this chapter represent only a small percent of these, but since practically all of them are abstracted in *Notes on Graduate Studies and Research in Home Economics and Home Economics Education* (6), which is published annually, it seemed desirable to discuss only those investigations which have been reported in published form and to confine them largely to studies at the elementary- and secondary-school levels. Most of the materials represent research investigations, although some have been included which present significant points of view or trends in educational thought or describe projects under way which seem likely to produce significant results when they are completed.

Instruction as a Part of the Basic Curriculum

The striking similarity in the conclusions and recommendations made in publications sponsored by several major educational organizations in 1941 (3, 24, 26) seems to indicate that an important change is taking place in the attitudes of teachers and administrators regarding the desirability of incorporating those materials dealing with home and family living into the curriculum basic for all rather than restricting them to special groups of girls. That such instruction is needed was pointed out by Spafford (39). She cited the opinions of administrators, teachers, and others regarding the value of homemaking education for both sexes and stated her own philosophy regarding the potential contribution of home economics toward improving personal and family living. Bell (8) recorded the results of interviews with 13,000 adolescents in Maryland and drew similar conclusions.

Family Living and Our Schools (26) presented the work of a joint committee of the Home Economics Department of the National Education Association and the Society for Curriculum Study. Reasons for frustration and confusion both among children and adults were enumerated as well as the folly of overevaluation of the intellect and underevaluation of the emotions, of undue stress on either academic achievement or vocational knowledge and skill, and of allowing the attitude to develop that homemaking and child rearing are menial tasks which lack social value and significance. Education was considered to be a means for helping people to develop their personalities and to realize their hopes and desires in

[1] Bibliography for this chapter begins on page 395.

marriage and in the rearing of children, as well as for transmitting cultural patterns and values. Coeducational study of real problems of family life was advocated, in which schools, homes, and communities cooperate to help individuals learn to satisfy emotional needs and to develop desirable relationships with others. Suggestions were offered regarding what should be done and illustrations were given of what was being done at all levels in the schools to develop such a program and to educate teachers to carry the responsibility for promoting such a type of education.

Education for Family Life (3), the 1941 yearbook of the American Association of School Administrators, stated that "a practical, realistic program of education for home and family life must occupy an important place in the educational services offered by the schools," and recommended that such instruction become a part of the basic curriculum, that it deal with actual home living problems, and that schools attempt to eliminate physical and emotional strain among children and to remove restrictions against marriage for women teachers. The appendix included references and organizations furnishing materials or services useful in family life education. Folsom (24) expressed the point of view of the American Youth Commission in saying that the "highest purpose of the movement for family life education . . . is to cultivate the faith that human life is worth living and that it is worthwhile to make it better." He discussed what needs to be done to accomplish this and described what was being done by schools and other agencies in many communities.

Many schools have developed instructional units for teaching personal and family living as a part of the basic school curriculum. Among the most interesting programs are those in Aberdeen, South Dakota (39), Denver (9, 20, 39), Frontenac, Kansas (35), Houston, Texas (39), Los Angeles (32), Menomonie, Wisconsin (39), Oakland, California (22), and the University School of Ohio State University (2, 39). Bristow (12) recommended the organization of an advisory committee to link school and community more closely, after she had obtained the opinions of parents in two urban and two rural communities regarding the homemaking needs of boys and girls and the purpose and relative importance of different aspects of homemaking instruction.

The need for home and family life education is widely recognized, although how and by whom it shall be taught is still an open question. That home economists have an important part to play is evident, but a really effective program seems to require cooperative effort of various groups. The teaching personnel and available agencies in a community, and the groups for which instruction is to be offered, will probably determine what plan of cooperation will be most effective.

Curriculum

Under the sponsorship of the Southern Association of Colleges and Secondary Schools, a study was carried on in Montevallo, Alabama (40),

which investigated the age distribution of junior high-school students, family patterns, occupational levels, housing conditions, homemaking practices engaged in by different family members, and their interests and leisure-time activities. The findings tended to corroborate those obtained in similar studies in other communities, although the investigation differed from the typical study in that information was collected from boys as well as girls and more than the typical number of them came from homes on the highest socio-economic level. Such investigations furnish information which may be useful in determining curriculum content which is likely to meet the needs in the local situation.

A group of teachers working on curriculum revision in St. Paul, Minnesota, centered attention first upon the sort of people they hoped would emerge from the schools. Consequently the tentative course of study published by the Department of Education (15) described a well-adjusted person and listed the objectives believed most likely to contribute toward developing such a person. In the same course of study, the authors listed those items which the majority of 3,500 students, Grades VII-XII, from nine states, stated represented what they wanted to learn in school. The objectives checked almost universally by these adolescents were those relating to learning acceptable behavior, presenting a good appearance, developing independence, breaking bad habits and forming good ones, making and keeping friends, and getting along with parents. So many objectives were checked by approximately the same proportion of students at the different grade levels that they should probably be regarded as ultimate goals. It was recommended that the suggested activities to help students progress toward each objective be considered as a reservoir from which to select those which seemed most appropriate in the particular situation, rather than that they be assigned a definite grade placement.

The Consumer Purchases Study, conducted under the direction of the Bureau of Home Economics and the Bureau of Labor Statistics, collected data which are likely to have a marked influence upon home economics curriculums in both secondary schools and colleges. Data procured from 300,000 urban and rural families furnished authentic information on family composition, income, and patterns of consumption. The findings have been published in a series of government bulletins (29, 33, 42, 43, 44).

A Study of Prerequisite Sciences and Certain Sequent Courses at the University of Minnesota (13) differed from other studies of prerequisites in that it covered a longer period of time, involved a larger number of cases, and followed the same students through prerequisite and sequent courses. The results showed that the student mortality in elementary science courses can be markedly reduced when the curriculum is made more flexible and more effective guidance is given; that laboratory experience is not essential for students to learn basic science concepts and understand their applications; that such learning may be accomplished in consid-

erably less than the typical time allotment; and that achievement in sequent courses is little affected by the type of science background.

A joint research project of Pennsylvania State College and the Pennsylvania Department of Health, dealing with 225 children in two urban communities, was reported by Lowther (30) who found that there was need for improved nutritional status in a considerable proportion of the children at all economic levels, although at the lowest levels there was the most acute lack of protein, calcium, Vitamin A, and Vitamin B_1. The groups with the higher nutrient intake tended to show the higher ratings on the physical examinations, and their socio-economic level tended to show a positive relationship to nutritional status, skeletal maturity, and darkness adaptation, but little if any relationship to weight, dental rating, posture, hemoglobin, or other physiological characteristics. The author proposed three plans for handling noon lunches and specified the amounts of calories, protein, minerals, and vitamins which would probably be required to remedy the dietary inadequacies discovered.

Siebert and Larson (38) described the effects of nutrition clinic contacts and noon rest periods on forty undernourished children in St. Paul, Minnesota. Evidence was collected by means of analysis of health records of nutritional status and reports of medical examinations given in the fall and again eight months later, and by home visits, the collection of teachers' opinions, and controlled observations made during the noon lunch. Scholarship had improved in half and posture in two-thirds of the cases between fall and spring; there was a notable increase in the consumption of milk, fruit, and vegetables and in the overcoming of food dislikes; and almost all children showed improved appetite and table manners, better sleep habits, and a reduction in fatigue, colds, and excitability.

Present Status of Secondary-School Instruction

Home Economics in Public High Schools (23) reported a nationwide study made by the U. S. Office of Education of the status of home economics. It supplied information regarding the extent of offerings in communities of different sizes, the time allotment, the percent of each sex enrolled in home economics classes at different grade levels, and the differences in the breadth of the program in schools which received reimbursement from federal vocational education funds and those which did not.

Effectiveness of School Instruction

Three investigations made recently have attempted to compare what high-school students learned incidentally about certain subjectmatter and what they learned when they received specific school instruction. Banks (7) and Frost (25) dealt with the various aspects of content in home eco-

nomics classes, Banks being primarily concerned with attitudes and Frost with information; and Bingham (10) dealt only with a unit on nutrition taught in classes in biology, in which he measured changes in attitudes, information, and the ability to apply it in evaluating advertisements containing statements regarding nutritional values. Although these studies differ in many respects, certain comparisons may be made with respect to the methods of investigation employed and the findings. Bingham utilized only about a fourth as many cases as did Banks and Frost in their joint study, and his test battery showed somewhat lower statistical reliability than did theirs; but Bingham's findings are unquestionably more significant. In the first place, the technics he used to insure validity in his test items were distinctly superior since his tests were set up in preliminary form, tried out, the discrimination of items determined, and the tests revised before they were used in the actual experiment; whereas none of these procedures were employed by Banks or Frost. Bingham determined the equivalence of his experimental and control groups in terms of their means and standard deviations on a pre-test, while studies of Banks and Frost merely assumed that their control and experimental groups were equivalent because they had selected the samplings to be representative in terms of geographical location, type of school, and proportion of school enrolment.

Bingham collected a variety of types of evidence, in addition to the scores on pencil-and-paper tests, such as descriptive statements from parents, students, and teachers; Banks and Frost used only pencil-and-paper tests, despite the fact that Frost assumed she was measuring certain homemaking skills. It is unfortunate that Bingham did not describe more fully the types of experiments carried on in the biology classes and the other testing technics employed, and that he did not devise some means for checking on the dietary practices of the students before and after instruction, other than the subjective statements made by or about certain individuals. Also, the reader who demands rigorous statistical treatment of data may not approve of the analysis and interpretation Bingham made of the respective gains made by the control and the experimental groups and may criticize the use of a control group apparently as an afterthought instead of as an integral part of the experiment. Nevertheless, the loss or the relatively insignificant gains made by the groups who were not receiving class instruction in nutrition showed such a striking contrast to the consistency and size of the gains in the classes which were being taught nutrition (with the exception of two schools which lacked instructional materials), that one can scarcely question his conclusion that definite instruction in nutrition is needed if high-school students are to improve their attitudes toward the importance of nutrition and increase their knowledge and ability to apply nutritional information. On the other hand, the reader will not be inclined to agree with Frost and Banks in their conclusions that skills, information, and attitudes "desirable for home and family life are developed through home economics instruction,

which are not gained as effectively through usual life experience and motivation," when he notes that in most cases the difference in mean scores for the groups with and without high-school instruction in home economics differed only a few points on both the information and the attitude tests. Most of these differences in mean scores on the various sections of the tests exceeded the 1 percent level of significance because of the large number of cases involved, but both investigators appeared to attach undue weight to the statistical significance and to disregard the administrative significance of their findings.

Methods of Instruction

Studies by teachers of educational problems faced in their own classrooms are to be commended, but to date few teachers seem to recognize the importance of objective evidence or understand research technics, so their conclusions too often represent merely wishful thinking. McAlister (31) compared the achievement on a grooming and clothing unit of twenty-two ninth-grade girls, half of whom were paired with the other half on age and IQ. In one class, the teacher alone decided what was to be studied and evaluated achievement; in the other, the students were led to decide upon their own goals, the experiences needed to learn to improve personal appearance and grooming and how to construct their garments, and worked with the teacher in planning how to evaluate their achievement. The cases were so few, the evaluation technics so crude and subjective, and evidence of *comparative* gains so lacking that one might question the conclusions that the class with maximum participation on the part of the students showed distinctly superior achievement, were it not for the fact that Hatcher (27) reached the same conclusions when she had large groups, controlled conditions carefully, and used valid, reliable, and objective evaluation devices.

Evaluation technics which emphasize the importance of personality and character development and the social utility of learning and which promote learning as well as measuring achievement are described by Prieur (34). A series of informal anecdotal records illustrated how senior high-school girls learned to analyze their own behavior, decided what changes needed to be made, and determined their progress toward the goals they set for themselves.

In view of the conflicting opinions regarding how to promote the carry-over of class instruction into home living, an experiment by Akin (1) has particular significance. When home projects were placed upon a voluntary basis instead of a specified number and type being required of each student, it was found that teachers made more home contacts, that slightly more projects were completed and that they were less likely to be limited to foods and clothing, and that mothers reacted more favorably to the home project program.

Hatcher's doctoral dissertation (27) probably represents the most significant study to date dealing with methods of instruction in home economics at the secondary level because of the scope, the painstaking control of the experimental situation, and the variety of evaluation technics employed. She studied the relative effectiveness of two methods of instruction at the senior high-school level in foods and consumer buying. The achievement of the experimental classes was consistently superior to that of the control classes when students were paired upon IQ pre-test scores and socio-economic level; the differences were statistically significant in every instance in which the data were objective enough to permit statistical analysis, and the same superiority was shown in the more subjective types of evidence such as written reports, diary records, and interviews with students and their parents.

In the control classes the teacher dominated the situation, deciding upon the objectives of the unit, the class activities, and the assignments, and assuming responsibility for evaluating the students' work. In the experimental classes the students shared with the teacher the responsibility for setting up objectives, planning activities, and evaluating progress; and they used certain self-teaching, self-evaluating devices. It is not known how much of the superiority of the experimental method resulted from student and teacher cooperation and how much from the use of the unique teaching and evaluating materials. Hatcher's study made certain significant contributions. She developed a method for recording foods eaten and for analyzing food intake by the use of checklists instead of mathematical calculations; she showed that these checklist ratings correlated closely with ratings made on identical dietaries when analyzed in the usual manner; and she discovered that when the experimental method was used, students made definite improvement in dietary practices as well as gains in information and skill in food preparation, although earlier studies by Botto (11) and Segner (37) had tended to show that high-school foods instruction had little, if any, measurable effect upon dietary practices.

Community Programs

Experiments in community cooperation in improving home and family life are under way in many places. Some of them are purely local projects, such as that in Greenville, North Carolina (36), in which girls in third-year homemaking had opportunities to learn how to meet and solve problems of housing and home management. Although not a research project in the ordinary sense, the procedures employed were carefully explained, objective data were furnished, and evidence was cited regarding the outcomes of the project in terms of individual, family, and community improvement. Other projects are more comprehensive, such as those being carried on in Kansas, Ohio, Tennessee, and Utah under the sponsorship of the Office of Education and those under way in Kentucky and Florida, which are

being financed by the Sloan Foundation. The last mentioned projects have progressed far enough for tentative results to begin to appear in print.

In 1938 the U. S. Office of Education selected two urban and two rural communities as laboratory situations in which to study how to find ways to bring about "stronger, richer, more realistic programs of education for home and family living through concerted community effort" (5). The communities chosen were Wichita, Kansas, Toledo, Ohio, Obion County in Tennessee, and Box Elder County in Utah. The progress made in these communities during the ensuing two years was presented in a series of articles by a member of the Federal Home Economics Education Service (16, 17, 18, 19). The programs have been developed to meet local needs but each one has a coordinator and an advisory committee on which are representatives of the cooperating educational and other community agencies. Accomplishments to date are manifold and may be classified as those relating to improving living conditions through cooperative endeavor to promote better health and more adequate housing; community recreation; adult education through expanded library facilities; the publicizing of lectures and classes dealing with home and family living problems; and the modification of school programs at all grade levels.

The purpose of the Sloan Foundation studies (21) was to discover the effect of school instruction upon community life. So far, investigations have been limited to nutrition and housing, but other aspects of family life are to be investigated later. Diets studied in several rural communities in Kentucky by means of surveys of food consumed at home and in school were found to be seriously deficient in protein, minerals, and vitamins; and children given physical examinations showed clear evidence of malnutrition and such diseases as goiter and hookworm. Housing is being studied in six communities in Florida by means of a questionnaire survey made by trained interviewers and a photograph of each house surveyed. A comprehensive program of achievement tests is being used to determine the relative achievement of pupils in the fundamental subjects in the control schools, operating with the traditional program, and in the experimental schools which provide vital instructional material relating to nutrition and housing problems. Statistical evidence is not yet available and subjective evidence indicates that it is possible to incorporate nutrition and housing into the ordinary class work from the first grade on, and for schools to help low-income families improve their living standards without an increase in cash expenditure.

Need for Guidance in Occupational Adjustment

The occupational adjustment of girls who graduated during 1921-1937 from high schools in Williamsport, Pennsylvania, and two nearby villages is described in a bulletin of the American Vocational Association (4). More than half of the graduates were married, a fourth of them within

three years after leaving school; about half had taken further training (chiefly for nursing, business, or rural school teaching); more than a third of those gainfully employed were working in factories or household service, but neither type of work was regarded favorably by the majority of the graduates. Whether single or married, most of them were living on low incomes and three-fourths of the rural graduates had migrated, usually to a larger community. It is evident that homemaking instruction for such groups should emphasize household management on a very limited income and that there is need for an occupational adjustment service for those seeking employment and for studies to show how home economics training can help place domestic service on a more acceptable level. The tragic implications of the desire for white-collar jobs which do not exist and the failure to recognize job possibilities in other types of work are shown in a study of the work experiences and future plans of about 9,000 girls in Grades VII-XII in St. Paul, Minnesota (14).

The need for effective guidance at the secondary level is shown in recent studies of mortality among college home economics students (28, 41). The high mortality among freshman women indicated that high-school students who aspire to go to college need to understand the types of instruction offered under the label of home economics and the intellectual demands of the various curriculums, as well as the approximate cost of financing a college education and the probable opportunities for earning.

Summary

The importance of home and family life education is widely recognized today and it is regarded as desirable for both sexes and at all educational levels. Although significant investigations in this field are still not numerous, certain trends are evident. Concern for the development and adjustment of the total individual in his presentday environment is growing; problems of merely theoretical interest are being replaced by those which come to grips with reality; and certain comprehensive, long-time studies which are subsidized from federal and private funds and which deal with the living problems of entire communities and attempt to discover the role of the school in family life and community improvement are getting under way. There is a definite need for more carefully controlled studies, for the development of more valid and effective measuring instruments, and for the utilization of appropriate statistical technics in analyzing the data collected so that the true meaning and the implications of the findings may be comprehended.

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CHAPTER IV

Industrial Education[1]

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INDUSTRIAL EDUCATION includes both industrial arts and trade education. While these two branches of education have their similarities, they also have marked differences (30). In the schools the former is offered for its general educational values and the latter is offered for specific vocational preparation for employment upon graduation or for those now at work who wish to supplement their knowledge or increase their skill.

National Defense

In the program of training workers for national defense (87), neither of the branches of industrial education is assumed to be concerned for a long period of time with any individual inasmuch as training for national defense involves preparation for service in small areas of occupations or highly repetitive work in specialized production. Teachers of industrial arts usually are not qualified by practical experience to teach defense training. However, the equipments of both areas are used to their fullest, day and night. Moreover, after the emergency, trainees should not hold high hopes for permanent employability in trades because of defense training. Defense training is likely to be limited to temporary employment (2). Tarbell (88) has analyzed the national defense training program in detail in relation to: (a) the personnel to be trained, (b) types of courses, and (c) faculty qualifications. The need of industrial arts shops and services in producing small tools for training, and of deviating from the more general aims to specific vocational aims during the emergency, was reported by Finsterbach (26). Industry's analysis of the need for redefined objectives for industrial arts in national defense was reported by Bowler (9) as follows: aims in defense education must move from the realm of theory to the specific, immediately attainable goals, and the teachers must be trade qualified.

The most useful curriculum research technic in industrial education is trade and job analysis. Through this technic, curriculum content is obtainable from the place that it functions in the community. The problem of training for production, especially in an emergency, cannot await solution by the long and sometimes tardy process of theorizing and development of text materials by way of the schoolroom. Industrial education has long utilized the analysis technic; it makes its area of activity worldlike in value, and school and industry are closely cooperating with full understanding of purposes and content. In the present emergency, the practical content was made available on short notice by means of the analysis technic.

[1] Bibliography for this chapter begins on page 404.

Having used this technic, Detroit (18) launched its defense training, a few days after authorization, with available course materials secured from industry. Dunwoody Institute (20) analyzed a series of occupations for widespread use in the emergency training program. These reports have not only current value but they offer curriculum materials of value for years to come. Outstanding among other investigations for determining curriculum content is the Texas report (89) covering the machinist trade and its related mathematics.

The most impressive achievements in course making by means of preliminary trade analyses are reported by the University of the State of New York in its Vocational Education Program for National Defense Industries (91), and by Detroit (19), and in their regular programs in Flint (41), Dearborn (28), Lincoln Park (14), and Grand Haven (49). Curriculum revision data were secured by Barich (5) from superintendents and foremen for twenty-seven occupations in a plant engaged in the manufacture of spark plugs, air cleaners, and small instruments. Defense training programs have been in effect about one year, covering one-third of the period of this report. The next two years should be a period of much development of valuable instructional material drawn from the community.

Growing Need for Industrial Training

Despite the need of training for national defense, there still remain two problems: (a) the need for secondary vocational preparation, and (b) the need of instruction in the skilled trades. Moehlman (67) reported that up to 1938 not more than 15 percent of necessary vocational training was provided by the schools. Woal (95) reported findings of a follow-up of the Koepke study (51) of 1934 on training, changing technology, and shift of workers to semiskilled classifications. The trend toward training needs is not clear inasmuch as apprenticeship is reported on the increase in all areas of industry; specifically, highly skilled tool and die makers and set-up men are in demand. Otherwise the training needs are theoretically reported to be lessening. It is difficult to compare the outcomes of these two studies inasmuch as the latter was made under depression conditions. Fryklund (31) reported that 44 percent of the workers in modern industry require extensive training. This does not include the great army of skilled mechanics in small shop and service occupations who will always require training. Kersey (48) refuted any seemingly convincing discussions on lessening industrial training needs in California by revealing facts regarding training, placements, and wages in Los Angeles. Gleason (33) presented evidence indicating public-school responsibility for training in semiskilled work. Those who doubt the growing need for industrial training are hard pressed for evidence supporting their beliefs in the face of recent events. The growth of trade education from 1918 to 1939 has been steady if one state can be considered adequate as a

sample for study. Hamilton (37) in a survey of placements found that 71 percent of the trade-school graduates were working with their first employers and 73 percent were working in the trades for which they were trained.

The desires of youth in relation to education were reported by Bell (7) in his study of conditions and attitudes of youth in Maryland. A real demand is evident for training in trades and crafts. Eckert and Marshall (21), although limiting their questioning technic, reported findings a great deal like those of Bell. Anderwald (3) gathered evidence of need for increased technical training in New York for automotive service organizations. His report covered both day and evening schools. Norton (71) surveyed the secondary-school programs and vocational adjustment of youth in New York and made recommendations for a statewide program characterized by breadth and flexibility. This study was made by a worker chosen from the general area of education in order presumably to prevent bias, but it actually resulted in many interpretations characteristic of a writer who is unfamiliar with the field. In contrast is the Essex County Vocational Survey, presenting a pattern that others could well follow in making similar studies. Campion (12) covered every phase of vocational education in relation to the schools, community, and industry. A comparison of these surveys gives evidence that studies of specialized areas should be made by persons who are familiar with the work of the area under consideration. Mathis (49) reported the Greensboro community survey of industrial firms for the training and employment possibilities of young people from eighteen to twenty-five years of age.

The growth of the numbers of shops was revealed by Claude (15) through data garnered from a publisher's list. A period of fourteen years was covered. This is the only comprehensive study that covers the numerical distribution of shops by states and the development of shop subjects on all levels of instruction, including colleges.

The effect of trade education on the lives of graduates of three trade-training institutions for Negroes in Virginia was studied by Hill (39). Supply and demand had not been balanced, and consequently 85 percent of the graduates of one school were not working at the trades for which they were trained. His recommendations included: (a) development of part-time cooperative education permitting specialization in many occupations; (b) employment of coordinators to reconcile the training efforts of industry and the schools; and (c) local occupational surveys in order better to determine needs. Smith (82) made a similar survey for North Carolina. Mills (66) and Stark (83) surveyed industrial arts training opportunities in rural, village, and county schools of Ohio. Stark found that 69 percent of the total enrolments of boys and 8 percent of the total enrolments of girls are in industrial arts classes. Edwards (22) used the survey technic to gather evidence in support of training needs for persons over sixteen years of age in the Lower Rio Grande Valley. Stroud (85) established the need for pre-engineering and technical curriculums by studying

the needs of three hundred boys. Wylie and Skinner (96) obtained from nine hundred boys and their fathers, suggestions for improvement of a technical curriculum. Rossow (78) found changing responsibilities of part-time schools for providing extension education for modern apprentices. Edwards (23) revealed that industrial arts teachers were not taking advantage of the many opportunities for including consumer education in industrial courses.

Broadening the Scope of Industrial Arts

A continuing long-time state industrial arts survey was reported for the Wisconsin schools (60). There is much valuable curriculum information for all persons concerned with modern education and modern social problems. Pennsylvania's committee of leaders in industrial arts (74) established policies for curriculum development including philosophy, content and method, supervision, floor plans, and equipment. Meyer (64) found that one hundred and ninety-five teacher graduates rated their college studies in terms of value as follows: technical, 74 percent; professional, 20 percent; scientific, 4 percent; and cultural, 1 percent.

There is increasing need for broadening the scope of technical content for training in the metal trades. Pancost (72) determined from the industries the amount of instruction needed during the first three years of earning in metal industries. Van Horn (90) and Jeppsen (42), by a canvass of teachers, workers, students, and executives, established a base for technical experiences in the occupational areas of publishing and printing. Martin (61) gathered suggestions through conferences and group meetings of specialists for improving instructional methods in printing.

Graphing—Cleveland (16) canvassed the need for study of the non-vocational making of charts, diagrams, maps, and sketches in the community. Heilig (38) and his committee cataloged all available types of graphs for curriculum use.

Safety—Studies to promote safe work practices in the shops are increasing. Many states and institutions are active in such studies, and new shop books are stressing safe construction procedures through integration. Smith (81) covered all aspects of shop safety. Estabrooke (25) surveyed practices among shop teachers in Pennsylvania. Schaude (80) studied 766 accidents in three hundred cities and found accidents resulting from the use of hand tools most common, with the chisel being charged with the greatest number of accident frequencies.

Influence of Teacher Education

There is a strongly growing recognition of the influences on all public-school curriculums of the teacher-education institutions. Trends of philosophy and practices in the colleges are reflected in the public schools.

The American Association of Industrial Teacher Trainers sponsored a survey by Fryklund (29) that covered ninety institutions and their faculties, aims, offerings, directed teaching, projected changes, and points of general interest. Directed teaching seems to deserve continued study according to the listing of twenty recommended researches. Already several studies relating to directed teaching are under way. Landis (52) reported comprehensively on teacher education in industrial education in Illinois by investigation of the teachers in the secondary schools. Stoner's study (84) of eleven teacher-education institutions in Ohio resulted in the adoption of a set of guiding principles for evaluating and accrediting industrial arts teacher education in Ohio. Belanger (6) studied the immediate, day-to-day problems and difficulties of selected industrial arts teachers of Minnesota and compared the findings with their teacher training and experience patterns. Difficulties were in selection and organization of subjectmatter, teaching technics, course of study preparation, and lesson planning. The personal library of industrial arts teachers is usually inadequate according to Kerr (47).

Budgetary Relations, Equipment, and Service

Equipment and financial problems are associated with curriculum functions. Parkes (73) studied the costs of vocational industrial education in second-class school districts in Pennsylvania and found that the average per pupil operating cost in eleven cities was $94.36. Britton (10) reported on the costs of instruction in nine vocational schools in Wisconsin. Buechner (11), in cooperation with seventy-five instructors, prepared a code of principles for industrial arts finance. A score card for evaluating, improving, and constructing industrial arts programs was developed by Weber (92).

Rose and Van Duzee (77), Pitsinger (75), Yaekle (97), Ghramm (32), and Meairs (63) contributed leading reports on equipment selection. An objective tool-index method of determining equipment lists was reported by Klehm (50). When his procedure is applied there would seem little reason for overequipping, underequipping, or for poor distribution of tools. Sources of materials which are free for the asking were cataloged by Groneman (34). Karnes (46) reported a new industrial arts experimental shop for try out of instructional materials.

There is a rapid trend toward the general shop in Grades VII to XII if a sampling of two hundred schools in Michigan is an indication. Chamberlain (13) reported that in these schools class size is sixteen to twenty pupils and the subjects taught in order are woodworking, metalworking, mechanical drawing, electrical working, and concrete working. Home workshops also are growing in number.

Interest in shop work for girls is increasing. Leming (54), Luse (56), McCauley (57), McFarland (58), and Werner (93) have reports relating to the selection and organization of materials suitable for girls. McHenry

(59) reported on student elimination in relation to school records. He found that school records meant little to teachers and administrators in secondary schools but if properly used were of vital aid in holding secondary-school pupils.

Methods of Teaching and Testing

Mechanical drawing—Birkeland (8) evaluated the oral method and the textbook method of instruction in drafting by means of experimental classes. The differences in gains by the oral method were not significant. Mechanical drawing offers objective situations that enable experimentation more readily than does shopwork. Josserand (44) found that teaching drafting by models and sketching was more effective than teaching with the usual equipment. Morgan (68) studied the relative value of models and textbook, and the textbook alone, in teaching mechanical drawing. Nicholas (70) substantiated the beliefs of most mechanical drawing instructors that blueprint reading should precede the study of drafting.

Pupils—Fleming (27) studied three thousand students who were enrolled for more than one semester in a vocational high school to determine the relation between previous school records and vocational school success. Low correlations are to be expected if the theory of unique traits is valid. Hafer (36) evaluated personality and intellectual traits of pupils who elected and those who did not elect industrial arts courses.

Tests—Student machinists and patternmakers were used in validating one thousand facts of chemistry by Ardussi (4). Zinn (98) validated comprehensive trade tests for technical information in printing. Reed (76) reported a midget wiggly block test validated on high-school boys—better for machine shop than for general shop selection.

Teaching to think—What do industrial arts teachers do to train pupils in *how* to think, as well as what to think? Howard (40) canvassed 110 instructors in the Middlewest and found wide use of pupil planning and pupil evaluating technics for projects made in the shops. These technics are worthy of examination by persons interested in developing the problem-solving technic of teaching shop work. The promotion of thinking habits in the power laboratory was studied by Wittick (94). Hackworth (35) compared results in self-motivated and traditional shop classes.

Reading—Jeske (43) determined the incidence of reading interests of one thousand industrial arts boys ranging in age from twelve to seventeen years. The way books are written has a decided bearing on the number of readers. There must be organization and design, accuracy, clear writing, and much illustrative material. Ludwig (55), confronted with reading difficulties of machine shop pupils, studied their vocabularies in relation to the texts used. Micheels (64) discarded the traditional class period to join with arts and home economics in establishing a unified arts program.

Objectives—Struck (86) released the most useful report of this period, dealing with creative teaching. It is helpful to prospective teachers and to

teachers in service, whether in industrial arts, trade education, home economics, agricultural education, municipal training, or commercial education. Lee (53) revised the symposium report on objectives and problems of vocational education.

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CHAPTER V

Music[1]

G. D. WIEBE[2]

RESEARCH IN MUSIC HAS, in the past, shown evidence of influence from the disciplines of educational testing and physics. Perhaps a disproportionate part of the literature has dealt with achievement and so-called talent tests. Much work has also been reported on the statistical refinements of these same tests.

In both of these areas (talent and achievement), the search has been for isolated, predictable, manageable elements that could conveniently be measured with numerical indexes. The "talent" tests have sought for those elements *in the listener's organic make-up* dependable traits that would characterize the individual's musical potentiality. The achievement tests have sought for those elements *in the listener's information about music*, dependable indexes that would accurately classify the individual in terms of musical accomplishment. But there has been a dangerous tendency to become absorbed in the quest for basic units and indexes, and intercorrelations between them, with the result that the prime relationships between these units and the main job to be done by educators becomes all but obliterated. The brief and significant question, "So what?" might aptly be asked regarding much research in music education. But the field of music education has exhibited a tendency to proceed either in terms of trial and error plus individual ingenuity or in terms of the laboratory disciplines of physics and statistics. The great range for crucial and practical research which lies between these two extremes has had little attention from those reporting studies in the field of music education.

In general, the common objective of music educators, perhaps more easily stated than implemented, is to place music more vitally in the service of society. Such a purpose as this one constitutes a challenge to music education. Such basic questions as the following await the diligent application of research disciplines: (a) In what operational ways are the stated objectives of music education being accomplished? (b) To what extent do the achievements of music education match the needs of students in contemporary society? (c) What are the unique capabilities and limitations characteristic of students at various stages of physical and psychological growth? (d) To what extent are the objectives of music education stated in cognizance of these capabilities and limitations? (e) To what extent does music education now function in out-of-school life?

It is heartening to observe a trend toward studies which can aid in making the day-to-day teaching of music more skilful, more rational, and

[1] Bibliography for this chapter begins on page 413.

[2] The author is indebted to Richard Gannon and Daniel D. Day for assistance in preparing this article.

more effective. Many of the studies cited in the following pages confirm this trend.

Music and Correlated Factors

Background and musicality—Seashore (50) found the excellence of composers to be more highly correlated with good work habits and previous informal musical opportunities than with formal training and inspiration. In a study of superior Negro children Beckham (5) reported home background and interest to be more important than intelligence in predicting high music aptitude scores. But Friend (22) reported the home environment of forty-two children to be negatively correlated with the children's scores on Seashore tests. Van Alstyne and Osborne (54) found five-year-old Negro children superior to white children in rhythmic tests, but credited the difference to early home background since differences tend to level out in early years of schooling. Dykema (15) reported comparisons of scores on Kwalwasser-Dykema tests taken by over 5,000 students in European countries.

Sex—Gilbert (23) found the superiority of women's Kwalwasser-Dykema test scores to be attributable to more musical training. He found no evidence of native superiority in either sex.

Art—In a study of intercorrelations among tests of musical, artistic, and mechanical abilities, Morrow (34) found mechanical and artistic abilities to be more highly correlated than either musical and artistic or musical and mechanical abilities among male college students. Farnsworth (20) reported a positive association between music and art ability and personality adjustment among elementary-school children.

Intelligence—Kwalwasser (31) reported "the tendency toward mediocrity" in his study of the correlation ($r = .34$) between musicality and intelligence. Groups selected for high and low musicality show a strong trend toward mean intelligence scores. Groups selected for high and low intelligence show a similar tendency toward mean scores in musicality. Ross (46) reported very low positive correlations between Seashore test scores and intelligence. He found that students with superior Seashore scores, however, equalled or exceeded 80 percent of the population in composite scholastic standing. Dean (13) reported intelligence and prior musical training to be of little value in predicting success in sight reading. Karlin (30) analyzed two batteries of tests in an attempt to isolate primary music abilities. He found negligible correlations between scores on music tests and intelligence tests. His findings suggested three primary factors of music ability: tonal sensitivity, memory for elements, and memory for form. Mursell (35) wrote a critical summary of ten publications on correlation between musicality and intelligence. Correlations found in European studies were high as compared with those found in American studies. Mursell suggests that this difference may be attributed to an unfortunate

tendency toward using atomistic indexes as measures of musicality in many American studies.

Physiological characteristics—Farnsworth (18) found a tendency toward inverse correlation between auditory acuity and musical ability. The differences were not, in general, statistically significant, but the findings are in the direction indicated by the Adlerian theory of overcompensation for organic inferiority. Wecker (55) reported a study in which totally deaf children were taught to recognize and reproduce rhythms and a few pitches played by concealed orchestral instruments. Jerome (28) reported change of voice in males to be more highly correlated with skeletal age (epiphyses of knee, wrist, and hand) than with either mental or chronological age. Christianson (10) found that rhythmic responses among pre-school children correlate with physiological development in motor coordination but that social inhibitions increase with age and result in decreased overt social-emotional responses.

Methodology

Learning to sing—Drexler (14) found among school children a high correlation of ability to carry a tune with chronological age. But Jersild (29) and Updegraff (53) reported marked improvement of experimental over control groups of pre-school children in response to training in singing. Blind (7) concluded from a study of nineteen monotones that all monotones can be taught to sing unless they are physically handicapped. The method used was a gradual enlargement of the pitch range, beginning with the pitch of the students' habitual speech. Jersild (29) reported a study by Sherman of keys in which 5,000 children preferred to sing. Medium keys were preferred; low keys were next; high keys were least liked. High keys became progressively less liked with increasing age.

Learning to read music—Bean (4) used a tachistoscopic device for improving the reading of adults and students. He reported, among other findings, the necessity of grasping patterns of notes in cultivating rapid and accurate reading. Wheelwright (57) concluded that notation could be made easier to read by making certain alterations in the shape and the grouping of notes. Ortmann (37) reported findings on the span of vision in note reading. He found that certain arrangements of notes influence the ease of reading them. Silvey (51) conducted a study of the usefulness of the sol-fa syllables in reading music. From an analysis of nearly 2,000 subjects, he reported serious weaknesses in the sol-fa system. Stelzer (52) constructed a sight-reading scale for organ music. Reliabilities were high. The test items were synthesized from a pre-analysis of 309 organ selections which were well liked by college students.

Memorizing music—From a study conducted with experienced piano students, Rubin-Rabson (47) found methods involving pre-study of the score superior to methods involving no pre-keyboard study.

Tastes and discrimination—Aizawa (1) studied the lyrics and tunes of songs liked and disliked by eight hundred Japanese school children. Agreement of preferences increased as the school year passed. Structural characteristics liked and disliked were reported. Farnsworth (19) found that tolerance for unusual harmonic combinations increased with increasing age and familiarity with those combinations. The study involved fifth- and eighth-grade and college students. Wray (60) reported studies by Camerea and Eberle which showed that technical analysis is an aid in teaching students to prefer "good" music. Eagleson and Taylor (16) studied the preferences of 75 Negro women for various chords. The paired comparisons technic was used. The triad was best liked; minor thirds and sixths came next; major sevenths and minor seconds were least liked.

Musical Meanings

In an experiment with 450 college students, Hevner (26) used a unique method for determining the relative effectiveness (meaningfulness) of various elements in musical composition. In order of importance, the three elements which most significantly determine musical meanings were reported as (a) tempo, (b) modality, and (c) pitch. In a second study, Hevner (25) found that slow tempos were characterized as calm, serene, tender, and sad; fast tempos as happy, exciting, graceful, and vigorous; high-pitched music as sprightly and humorous; low-pitched music as sad, majestic, dignified, and serious. Rigg (45) reported an experiment which seemed to substantiate Sarantin's theory which holds that musical meanings may be accurately predicted by specifying the tempo, predominant intervals, mode, harmony, dynamics, rhythm, and staccato or legato to be used in a composition. But Rigg (44) reported that although college students can discriminate between sad and joyful music they show decreasing success as finer discriminations are attempted. In a third study, Rigg (43) found that transpositions of a fifth or an octave up made music sound happier whereas similar transpositions down made music less happy. Smaller transpositions had little effect.

Music and Emotional Reactions

Capurso (9) had ninety-five grade-school children in the elementary school write one-word descriptions of musical selections. The emotionally unstable differed from the stable students principally in that the former gave more unique words and tended to repeat the same words. Jacobsen (27), using a galvonometric device, found that mental states are affected by music. He recommended a program of mental hygiene through conditioning students to react in specified, desirable fashions to certain music. Loar (32) studied the emotional responses of one subject to the music of Schumann. He reported responses to music to be significantly linked with the subconscious. Moreno (33) treated a professional musician for severe

stage fright by training him to feel creatively and spontaneously during the performance of memorized music. Altshuler (2) reported successful use of music in treatment of groups of mental patients.

Radio

Wiebe (59) discussed findings from three surveys of students' radio program preferences. He reported a tendency toward increased preoccupation with jazz with increasing age. Erdelyi (17) concluded that the effect of radio upon the sale of popular sheet music is a phenomenon of social pressure rather than a discriminating judgment of the buying public. Fox (21) studied children's preferences for various types of radio programs. The student sample was from twenty-five states. She reported the band to be the favorite type of music. Peter (39) reported a study of radio ownership, listening habits, and program preferences. During a sample week in 1938, 52.5 percent of the total program time was devoted to music. Potter (40) made a survey in California to ascertain the amount and nature and the educational outcomes of radio listening in the schools of that state. The Radio Research Committee of the University of Wisconsin (49) reported substantial success in teaching music information by means of radio programs. The Gildersleeve-Harrison Music Information Tests were used as criteria. Wiebe (58) studied the effect of the "plugging" (frequent performances) of popular songs on students' opinions of these songs.

General and Administrative

A survey (3) of current practice in granting college entrance credit for music was reported. Welch (56) reviewed the problem of college entrance credits in music and made recommendations. Riemenschneider (42) reported on a questionnaire sent to members of the North Central Association. The most frequent objective stated was "to create love for and interest in music throughout the entire student body." According to his report, buildings, equipment, and libraries were generally less than adequate. Faculty qualifications were "par" and community services were outstanding. Clark (11) concluded from a study of music in Negro schools that music, in general, has been relegated to an unimportant status. Connette (12), from a survey of opinion from in-service teachers, ranked supervisory procedures in the following order of desirability: (a) visitation, conference, and criticism, (b) teachers' meetings, (c) demonstration teaching, (d) group and individual research, (e) directing professional reading, (f) administrative provisions, (g) directing the work of teachers, (h) out-of-town agencies, and (i) letters and bulletins.

Peckstein and Monk (38) studied the musical activities of the 57 percent of students in an urban high school who earned high scores on the Kwalwasser-Dykema tests. They reported no participation in musical activity other than required classes for 47 percent of these students. Other findings

and recommendations were reported. From questionnaires filled out in 291 college examination centers, Beggs and Brigham (6) concluded that only half of those centers had phonographs which would rate C+ or above on a scale of quality ranging from A+ down to D—.

Reviews and Bibliographies

Borchers (8) reviewed and commented on eighteen researches in music. He dealt with studies in talent testing, violin and vocal vibrato, tone quality of piano and voice, the whole and part method of learning music, and the teaching of rhythm. Haydon (24) summarized new and interesting practices reported from forty departments of music (college level). Quarles (41) prepared a bibliography of one hundred books considered important in the field of music education. Schoen (48) reported an extensive bibliography of the periodical literature in the experimental psychology of music up to the year 1936. Mursell (36) reviewed sixty psychological researches in music education.

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